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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,170	10/06/2003	David Joseph Kropaczek	24GA6001	2278
33727 7590 07/25/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			EXAMINER CRAIG, DWIN M	
			ART UNIT 2123	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/678,170	Applicant(s) KROPACZEK ET AL.	
	Examiner Dwin M. Craig	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 9-19 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-19 and 21-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 1-7, 9-19 and 21-32 have been presented for reconsideration based on Applicants' amended claim language and arguments.

#### *Response to Arguments*

2. Applicants' arguments presented in the 4/25/2007 responses have been fully considered; the Examiner's response is as follows:

2.1 The Examiner thanks the Applicants' for amending the claim language and for claims 2, 10, 18, 21 and 28 and hereby withdraws the previous objections to the same.

2.2 Regarding the Applicants' response to the 35 U.S.C. 103(a) rejections of claims 1-7, 9-19 and 21-32, the Examiner respectfully traverses Applicants' arguments.

On pages 10 and 11 Applicants' argued, *Applicants respectfully submit that both O'Sullivan and Hogan are silent with regard to "sorting, filtering and moving...based on one or more fuel attributes" as recited in amended claims 1, 19, 32.*

The Examiner respectfully traverses Applicants' argument, clearly *Sullivan* teaches, *sorting, filtering and moving...based on one or more fuel attributes*, page 1 discloses, "Using a right click on the mouse, groups of symmetric assemblies can be rotated 90, 180 or 270 degrees, core locations are darkened where an assembly has been moved." Being able to choose a *symmetric* group of assemblies clearly teaches the limitation of *moving and sorting based on an attribute*, which in this case is that the assemblies are symmetrical.

On page 11 Applicants' argued, "Without this specific tool element, Hogan and O'Sullivan cannot render the current claims obvious."

As argued above, O'Sullivan does disclose a teaching that meets the current claim language.

### ***Claim Interpretation***

3. The Examiner has given the broadest reasonable interpretation to the claims that is consistent with Applicants' specification see MPEP 2111.

Regarding claim 1, the current claim language teaches that a Graphical User Interface has a loading tool and a loading map and that fuel bundles are placed in at least one fuel pool according to that map. The current claims fails to *tie in* any claim limitations regarding a relationship between the claimed fuel pool table and reload fuel table and the resultant loading map. Therefore any combination of references that teach a Graphical User Interface and a tool, a loading map and a means to load a fuel pool using the loading map, meets the call of the current claim language.

Regarding claim 19, the current claim language fails to provide a relationship between moving a fuel pool table to a reload fuel table and placing the fuel bundles in the at least one fuel pool according to the selected loading map. All that is required to teach the limitations as disclosed in claim 19 is a teaching of a loading map, a Graphical User Interface with a tool and a means to place fuel bundles in a fuel pool based on the loading map.

Regarding claim 32, the current claim language fails to provide for a link between the moving a fuel pool table to a reload table and placing fuel bundles in the at least one fuel pool according to the selected loading map. The current claim language fails to disclose any link between the loading map and the claimed tables. Any combination of references that teach a

graphical user interface and a tool and loading fuel bundles using a loading map meets the call of the current claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-7, 9-19 and 21-32 are rejected under 35 USC § 103(a) for being unpatentable over “MIROBURN-B2 TO RETRAN-3D Linking Code by Donald Hines and “CPW for SIMULATE-3 by Kevin O’Sullivan contained in the “*Update...*” news letter, hereafter referred to as the *O’Sullivan* reference in view of U.S. Patent 5,414,809 to Hogan.

4.1 As regards independent claim 1 the *O’Sullivan* teaches *providing a graphical user interface that allows a user to selectively populate a loading map with <a representation of> fuel bundles residing in at least one fuel pool, wherein the graphical user interface includes one or more loading tools* (pages 1 & 2 and more specifically, “In both PWR and BWR versions, the core engineer design engineer can swap assembly locations in the core or “drag and drop” assemblies and their modeling data from the Spent Fuel Pool or Fresh Fuel locations to the core.”) and *placing the fuel bundles in the at least one fuel pool according to the selected loading map* (page 1, “...to discharge fuel from the core, rearrange the remaining fuel, **load** fresh fuel, **reinsert** prior burned assemblies from the spent fuel pool...” clearly the intent of *O’Sullivan* is to load or reload fuel bundles into fuel pools, more specifically *O’Sullivan* teaches transferring the fuel bundles to the “*core*” which is functionally equivalent to Applicants’ claimed *reload fuel table* because, the *reload fuel table* will end up being what is loaded into the *core*).

Regarding the newly amended limitations, *Sullivan* teaches, *sorting, filtering and moving...based on one or more fuel attributes*, page 1 discloses, “Using a right click on the mouse, groups of symmetric assemblies can be rotated 90, 180 or 270 degrees, core locations are darkened where an assembly has been moved.” Being able to choose a *symmetric* group of assemblies clearly teaches the limitation of *moving and sorting based on an attribute*, which in this case is that the assemblies are symmetrical.

However, *O'Sullivan* does not expressly disclose *wherein the graphical user interface includes one or more loading tools for selecting and moving a filtered fuel table to a reload fuel table.*

*Hogan* teaches the use of graphical user interface “*tool for selecting and moving*” data items from one list to another list (specifically Figure 9 shows a GUI tool identical to the GUI tool disclosed in the Applicants’ Figure 3 item # 160).

*O'Sullivan* and *Hogan* are from the same problem solving area of providing Graphical User Interfaces for performing data manipulation.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have used the GUI tool of *Hogan* in the GUI environment of *O'Sullivan* to transfer items from the Spent Fuel Pool locations to the Core (which is the functional equivalent of Applicants’ claimed *reload fuel table*.)

The suggestion for doing so would have been to provide an easy to use interface for moving data from one table, *spent fuel pool* to another table *a fresh fuel table* without any special knowledge of a computer interface. The efficiency and ease of use would motivate an artisan of ordinary skill to provide the GUI tool as disclosed in *Hogan*, see also *Hogan* Col. 1 lines 34-69 and Col. 2 lines 1-17.

Therefore, it would have been obvious to combine *Hogan* with *O'Sullivan* in order to obtain the invention as specified in claims 1-7, 9-19 and 21-32.

**4.2** Regarding claim 2, *O'Sullivan* teaches the functional equivalent of *storing at least one fuel pool database, the fuel database including a list of at least a portion of the fuel bundles residing in the fuel pool*; (see the figures on page 2 which show *lists* see the “Spent Fuel Pool

table and the “Fresh Fuel Listing” table, both of these tables teach lists of fuel bundles) *and wherein the graphical user interface selects fuel bundles from the fuel pool database to populate the loading map* (page 1, “The CPW is written in Visual Basic with an ODBC database connection to Access, SQL, Oracle or Sybase as well as Microsoft Excel and Word.”).

4.3 Regarding claim 3, *O’Sullivan teaches, wherein the fuel database indicates one or more attributes for the listed fuel bundles* (page 2 in the figure “Fresh Fuel Listing” “Fuel Type” and “Fuel Descrip” are attributes).

4.4 Regarding claim 4, *O’Sullivan teaches, K-Infinity* (page 2 “Spent Fuel Pool” column label in the figure).

4.5 Regarding claims 5, *O’Sullivan teaches, database management tools*, (pages 1 & 2 “Access, SQL, Oracle or Sybase as well as Microsoft Excel and Word.”).

4.6 Regarding claim 6, *O’Sullivan teaches or substantially teaches the functional equivalent of, the fuel pool database indicates one or more attributes* (see the figures on page 2 which show attribute fields for the “Spent Fuel Pool and the “Fresh Fuel Listing” for example “Fuel Type”, Num. Avail.” These are attributes) and *the at least one fuel pool database management tools include filtering the listed fuel bundles according to at least one of the attributes* (pages 1 & 2 “Access, SQL, Oracle or Sybase as well as Microsoft Excel and Word” Further, the program *excel* as expressly disclosed allows sorting according to different criteria different data items, which is functionally equivalent to *filtering*).

4.7 Regarding claim 7, *O’Sullivan teaches or suggests, the fuel pool database indicates one or more attributes* (see the figures on page 2 which show attribute fields for the “Spent Fuel Pool and the “Fresh Fuel Listing” for example “Fuel Type”, Num. Avail.” these are attributes) and *the*



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*at least one fuel pool database management tools include sorting the listed fuel bundles according to at least one of the attributes* (pages 1 & 2 “Access, SQL, Oracle or Sybase as well as Microsoft Excel and Word” Further, the program *excel* as expressly disclosed allows sorting according to different criteria different data items).

4.8 Regarding claim 9 *O’Sullivan* teaches the functional equivalent of *wherein the graphical user interface further allows the user to selectively populate the loading map with different types of fresh fuel bundles* (page 2 “Fresh Fuel Listing”).

4.9 Regarding claim 10, *O’Sullivan* teaches or makes obvious, *storing at least one fresh bundle type database, the fresh type bundle database including a list of fresh bundle types;*(page 2 note the figure labeled “Fresh Fuel Listing” and further the examiner notes that Microsoft® EXCEL provides a method to *store* data) *and wherein the graphical user interface selects fresh fuel bundle types from the fresh bundle type database to populate the loading map* (Page 1 “The core design engineer can quickly evaluate minor adjustments in a loading pattern using a 4-node per assembly Quarter Core Map that is synchronized with a full core map and set of Shuffle windows used to discharge fuel from the core, rearrange the remaining fuel, load fresh fuel, and reinsert prior burned fuel assemblies from the spent fuel pool...”).

4.10 Regarding claim 11, *O’Sullivan* teaches, *wherein the fresh fuel bundle type database indicates one or more attributes for the fresh fuel bundle types* (page 2 in the figure “Fresh Fuel Listing” “Fuel Type” and “Fuel Descrip” are attributes).

4.11 Regarding claim 12, *O’Sullivan* teaches, *wherein the attributes include at least one of mechanical design, ...k infinity* (Page 2 “Spent Fuel Pool” K-Infinity is the 7<sup>th</sup> column from the left).

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**4.12** Regarding claim 13, *O'Sullivan teaches, wherein the graphical user interface includes one or more fresh bundle type database management tools for aiding in the fresh fuel bundle type selection process* (pages 1 & 2 "Access, SQL, Oracle or Sybase disclose software programs that contain tools for database management, more specifically Sybase provides database management tools).

**4.13** Regarding claim 14, *O'Sullivan teaches, wherein the fresh bundle type database includes one or more attributes for the fresh fuel bundle types; ("Fresh Fuel Listing" page 2 and "Fuel Type" is an attribute) and the at least one of the fresh bundle type database management tools includes filtering the listed fresh fuel bundle type according to at least one of the attributes* (pages 1 & 2 "Access, SQL, Oracle or Sybase disclose software programs that contain tools for database management, more specifically Sybase provides database management tools, these tools can be used with SQL strings to sort different elements of a data base or filter those elements by specific criteria, an artisan of ordinary skill at the time of the invention would know to use these database tools to perform the steps being expressly claimed by the Applicants.).

**4.14** Regarding claim 15, *O'Sullivan teaches, wherein the fresh bundle type database indicates one or more attributes for the listed fresh fuel bundle types; and the at least one of the fresh bundle type database management tools includes sorting the listed fresh fuel bundle types according to one of the attributes* (pages 1 & 2 "Access, SQL, Oracle or Sybase disclose software programs that contain tools for database management, more specifically Sybase provides database management tools, these tools can be used with SQL strings to sort different elements of a data base or filter those elements by specific criteria, an artisan of ordinary skill at

the time of the invention would know to use these database tools to perform the steps being expressly claimed by the Applicants).

4.15 Regarding claim 16, *O'Sullivan* does not expressly disclose, *wherein the graphical user interface includes one or more fresh bundle type loading tools*. It is noted that *O'Sullivan* does teaches a graphical user interface see page 2.

However, *Hogan* discloses, a plurality of GUI tools (Figures 9 thru 15).

4.16 Regarding claim 17, it would have been obvious to an artisan of ordinary skill to use the teachings of *O'Sullivan* to perform nuclear fuel reloading on more than one reactor core, this is merely claiming performing a *duplicate* process on a *duplicate* reactor core, see MPEP 2144.04 (section VI. Reversal, Duplication, or Rear-Rangement of Parts).

4.17 Regarding claim 18, *O'Sullivan* teaches, *wherein the graphical user interface selectively populate a loading map with fuel bundles residing in more that one fuel pool* (see page 2 which discloses a teaching of a GUI with more than one fuel pool the table labeled, "Spent Fuel Pool" and the table labeled "Fresh Fuel Listing").

4.18 Regarding claim 19, see the rejection of claim 1 above.

4.19 Regarding claim 21, *O'Sullivan* teaches, *accessing a fuel pool database that includes a list of at least a portion of the fuel bundles residing in the fuel pool* (page 2 discloses lists of fuel bundles arraigned in a form that could have been accessed from a database).

4.20 Regarding claim 22, see the rejection of claim 3 above.

4.21 Regarding claim 23 see the rejection of claim 4 above.

4.22 Regarding claim 24, see the rejection of claim 14 above.

4.23 Regarding claim 25, see the rejection of claim 14 above.

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4.24 Regarding claim 26, see the rejection of claim 15 above.

4.25 Regarding claim 27, *O'Sullivan* suggests, *using one or more loading tools to aid in selectively populating step* (page 1, "...to discharge fuel from the core, rearrange the remaining fuel, **load** fresh fuel, **reinsert** prior burned assemblies from the spent fuel pool..." clearly the intent of *O'Sullivan* is to load or reload fuel bundles into fuel pools, more specifically *O'Sullivan* teaches transferring the fuel bundles to the "*core*" which is functionally equivalent to Applicants' claimed *reload fuel table* because, the *reload fuel table* will end up being what is loaded into the *core*).

4.26 Regarding claim 28, *O'Sullivan* teaches, *second selectively populating the loading map with different types of fresh fuel bundles* (page 2 the table labeled "Fresh Fuel Listing").

4.27 Regarding claim 29, see the rejection of claim 10 above.

4.28 Regarding claim 30, see the rejection of claim 17 above.

4.29 Regarding claim 31, see the rejection of claim 18 above.

4.30 Regarding claim 32, see the rejection of claim 1 above.

### *Conclusion*

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

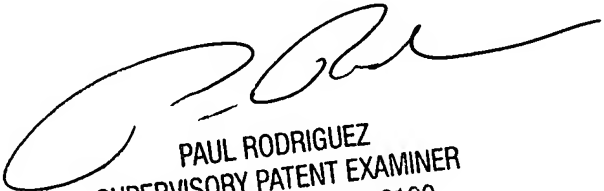
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwin M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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